

In numbered paragraph 2 of the Office Action the Examiner rejected Claims 1 and 18 as being unpatentable over U.S. Patent No. 5,233,629 ("Paik et al."). Applicants respectfully traverse and request reconsideration and withdrawal of the rejection of Claims 1 and 18 for at least the following reasons. As stated in its Abstract, Paik et al. teaches a concatenated coding scheme based on codes for QPSK modulation directly incorporated into QAM based modulation systems, forming trellis coded QAM. As stated further in column 7 starting at about line 12, Paik et al. teach that the two 'coded' bits output from their "convolutional encoder" 48 are actually QPSK codewords, and are used to select a constellation subset. Paik et al. then further teach in column 7 at about lines 14-16 that uncoded bits are used to select a specific signal point within the constellation subset from the QAM constellation. Applicants, however, claim in Claims 1 and 18 convolutionally encoding data using one of two distinct code generator matrices to provide convolutional coded codewords. Applicants thus contend that Paik, et al. is does not teach or suggest the invention claimed by Applicants in Claims 1 and 18 and that Claims 1 and 18 are patentable over Paik et al. within the meaning of 35 U.S.C. §103. Reconsideration and withdrawal of the rejection of Claims 1 and 18 are therefore respectfully requested.

In numbered paragraph 4 of the Office Action the Examiner rejected Claims 2, 3, and 14 as being unpatentable over Paik et al. in view of U.S. Patent No. 4,639,548 ("Oshima et al."). Applicants respectfully traverse and request reconsideration and withdrawal of the rejection of Claims 2, 3, and 14 for at least the following reasons. As stated in its Abstract, Oshima et al. teaches an error correction code data communication system that scrambles and descrambles both non-coded data and coded data. As noted above with respect to Claims 1 and 18, Applicants contend that Paik et al. teaches a concatenated coded scheme that uses both coded and uncoded bits and thus Applicants contend that presuming, arguendo, that one skilled in the art would be motivated to combine the teachings of Paik et al. with Oshima et al., Applicants contend that the combination does not teach or suggest Applicants'

claimed invention in Claims 2, 3, and 14 within the meaning of 35 U.S.C. §103. Applicants thus contend that Claims 2, 3, and 14 are patentable over Paik, et al. in view of Oshima et al. within the meaning of 35 U.S.C. §103. Reconsideration and withdrawal of the rejection of Claims 2, 3, and 14 are therefore respectfully requested.

In numbered paragraph 5 starting on page 4 of the Office Action the Examiner rejected Claim 9 as being unpatentable over Oshima et al. in view of U.S. Patent No. 5,917,852 ("Butterfield et al."). Applicants respectfully traverse and request reconsideration and withdrawal of the rejection of Claims 9, and 7-8 from which Claim 9 depends, for at least the following reasons. As stated above with respect to Applicants response to the rejection of Claims 2, 3 and 14, Applicants contend that Oshima et al. does not teach or suggest the claimed invention in that Oshima et al. teaches processing of both coded and uncoded bits. Thus, presuming, arguendo, that the characterization of Butterfield et al. in numbered paragraph 5 of the Office Action is correct and that one skilled in the art would be motivated to combine the teachings of Oshima et al. with those in Butterfield, the combination does not teach or suggest Applicants' claimed invention in Claim 9, or in Claims 7-8 from which Claim 9 depends, in that Butterfield et al. does not overcome the noted defect in Oshima et al. Thus Applicants contend that Claims 9, and 7-8 from which Claim 9 depends, are patentable over Oshima et al. in view of Butterfield et al. within the meaning of 35 U.S.C. §103. Reconsideration and withdrawal of the rejection of Claims 9, and 7-8 from which Claim 9 depends, are therefore respectfully requested.

In numbered paragraph 5 [sic] starting on page 5 of the Office Action the Examiner rejected Claims 7, 8 and 13 as being anticipated by Oshima et al. Applicants respectfully traverse and request reconsideration and withdrawal of the rejection of Claims 7-9, and 13 for at least the following reasons. As stated above with respect to Applicants response to the rejection of Claims 2, 3 and 14, Applicants contend that Oshima et al. does not teach or suggest the claimed invention in that Oshima et al. teaches processing of both coded and uncoded bits. Thus, Applicants

contend that the claimed invention in Claims 7, 8, and 13 are not anticipated by Oshima et al. within the meaning of 35 U.S.C. §102. Reconsideration and withdrawal of the rejection of Claims 7-91 and 18 are therefore respectfully requested.

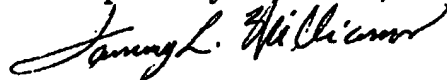
Applicants thank the Examiner for the indication in numbered paragraph 6 of allowable subject matter in Claims 4-6, 10-12, 15-17, 19, and 20, however, Applicants respectfully submit that Claims 1-20 are allowable over the cited art.

Applicant respectfully submits that the remarks herein are believed to be fully responsive to the Office action and, in light of the above, it is respectfully submitted that the present application is in condition for allowance, and notice to that effect is respectfully requested.

While it is believed that the instant reply places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

To the extent necessary, Applicant petitions for an Extension of Time under 37 CFR 1.136. Please charge any fees in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 20-0668 of Texas Instruments Incorporated.

Respectfully submitted,



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3. Claims 1 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Paik et al. (U.S. PN: 5,233,629).

Paik et al. disclosed an apparatus and method for encoding data for use in the digital communication systems (see col. 4, lines 48-50) comprising a binary convolutional encoder (see figure 2 element 48 and col. 4, lines 50-56) employs a rate 1/2, 64-state convoutional code, in which generators are 171 and 133 in octal. Paik et al. teach the invention as detailed but did not explicitly teach octal generator 175. However, designing convolutional encoders characterized by numbers (octal) referred to as generators for LSB, CSB and MSB is a matter of the designer's choice. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made design various types of generators of octal generator. This modification would have been obvious because a person having ordinary skill in the art would have been motivated to increase the alternatives of encoding and flexibility of configuration that results in heightening the encoding efficiency.

4. Claims 2, 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Paik et al. (U.S. PN: 5,233,629) in view of Oshima et al. (U.S. PN: 4,639,548).

As per claim 2, Pike et al. substantially teach all subject matter claimed in claim 1. Paik et al did not explicitly teach a method of scrambling a data. However, Oshima et al. in an analogous art teach a scrambler and a method for performing scrambling data (see figure 4, element 1a) and encoding a convolutional code (see fig. 4, element 33). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate Oshima's scrambler and methods of scrambling in the system of Paik et al. to